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T170CR Series 24 Hour Dial with Skipper and Carry-model T171CR shown.

Mechanical Time Switches

24 Hour - This heavy duty mechanical time switch is designed for industrial, commercial and residential applications. This time switch has the highest horsepower ratings in the industry for loads up to 40 amps resistive from 120 to 480 volts providing direct 24 hour time switch control of most loads. This series provides 1 to 12 "ON/OFF" operations each day with minimum ON/OFF times of 1 hour. All models are equipped with one "ON" and one "OFF" tripper.

24 Hour, 40 Amp with 7 Day Skipper - The skipper series performs the same functions as the Century time switch plus it allows you to omit operation on selected day(s) of the week. Cutout screws provided with the time switch are inserted in the day skipper dial for days which operation is to be skipped. The T170 series provides up to 10 ON/OFF operations every day with minimum ON/OFF operations of 1 hour and maximum ON time of 20 hours. All models are equipped with one CUTOUT tripper (which also serves as an "ON" tripper), one "OFF" tripper and three skipping screws.

24 Hour Portable - These portable cord connected time switches perform all the functions of the T100 and T170 series time switches plus they are completely portable eliminating the need for wiring. This time switch can be moved to new locations for different applications (indoor applications only). All models supplied complete with grounded cord set and receptacle installed.

7 Day, 40 Amp - These heavy-duty mechanical time switches are designed for industrial, commercial and residential applications. These time switches provide a

- ▶ Malibu Low Voltage Lighting
- ▶ Malibu Solar Lighting
- ▶ Home Protection & Controls
- ▶ Pool & Spa Controls
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different "ON/OFF" program each day of the week. They also provide for 4 pole single throw and 4 pole (2NO/2NC) switching. This series provides true 7-day load control with minimum ON and minimum OFF times of 3-1/2 hours. The "BC" models with carry-over provide a carry-over of 16 hours minimum to maintain accurate load control even during power failure. When power resumes, the carry-over automatically rewinds itself. Only 1 hour is required to rewind the carry-over for each 2 hours of outage. The carry-over models are ideal in applications where true 7-day control is required and where power outages occur entailing costly resetting.

Repeat Cycle - These timers provide repeat cycling for applications which require as short as 2-1/2 second "ON" times. Models provide for complete dial cycle every 5, 10 or 30 minutes and every 1 or 4 hours with tripper actuating times of 2-1/2, 5, 15, 30 or 120 seconds duration, respectively. Ten combination "ON/OFF" trippers supplied with each switch. Dials on all models have 120 slots.

Water Heater - The WH40 and WH80 provides a convenient external override switch. Utilities in some areas of the country offer two electric rates for residential or commercial customers. One rate has the regular daytime electrical rate, the other is "off peak" rate. The off peak rate provides customers with lower-priced electricity during the nighttime and weekend periods. The special construction of the WH80, incorporating a skipper function, enables the customer to have all the hot water required, especially on weekends when the time switch permits 24 hour a day operation automatically. Since the WH80 has normally closed contacts, the water heater will remain ON during the weekend when the skipper is set to do so. Three sets of ON/OFF trippers (and three skipper screws for model WH80) are supplied.

Astronomic - This time switch is self

adjusting for seasonal changes to provide energy saving control of outdoor lighting. One setting provides you lights ON at sunset, lights OFF at sunrise or between 8:30 P.M. and 2:30 A.M. all year long. The astronomic dial; automatically adjusts itself as the days grow shorter or longer. A skipper provides lighting control to be omitted on selected day(s) of the week. The carry-over is designed to maintain preset schedule during power outages for a minimum of 16 hours. When power resumes, the carry-over automatically rewinds itself. Only 1 hour is required to rewind the carry-over for each 2 hours of outage. These switches are ideal in areas where power outages occur and entail costly resetting. The 3PST switch configuration provides for control of 3-phase lighting. Three skipper screws are furnished. These switches come standard in a rainproof NEMA 3R enclosure for outdoor installations.

24 Hour, 40 Amp with 7 Day Skipper and

Carryover - These models provide the same features as the T170 Series Skipper models for omitting operation on selected day(s) of the week. The T170CR series also provides a minimum of 16 hours of carry-over for maintaining preset schedules during power failures. The carry-over automatically rewinds when power resumes. Only one hour is required to rewind the carry-over for each two hours of power outage. All models are equipped with one CUTOUT tripper (which also serves as "ON" tripper), one "OFF" tripper and three skipper screws. The 4PST models are ideal for 3-phase load control.

24 Hour, 20 Amp with 7 Day Skipper and

Carryover - The T1900 Supervisor Series provides up to 96 operations (48 ON/48 OFF) every 24 hours. This series provides operations with minimum ON/OFF times of 15 minutes. Trippers slide in and out of dial for fast accurate setting. The skipper models provide for operations to be omitted on selected day(s) of the week. Models with carry-over provide a minimum of 16 hours of

carry-over to maintain preset schedules within $\pm 2\%$ accuracy during power failures. The carry-over automatically rewinds when power resumes. Only one hour is required to rewind the carry-over for each two hours of power outage. These switches are ideal in areas where shorter duration ON/OFF times are required and power outages occur entailing costly resetting.

7 Day, 20 Amp - The T2000 Series provides up to 84 (42 "ON/OFF") operations each week. Minimum "ON/OFF" times for this series are 2 hours each providing up to 6 "ON/OFF" operations each day.

7 Day, 15 Amp

Percentage Cycle Timers - This timer provides repetitive cycling for fans, misters, foggers, feeders, process equipment, oil pumps, irrigation, nurseries and other short cycle applications. The timer is field adjustable for a percentage of a total cycle duration. Total cycle durations can be set from 30 seconds up to a maximum of 30 minutes, with ON/OFF durations from 1 second up to 29 minutes. The total cycle duration is selected by positioning two jumpers on the circuit board, which are factory preset for 10 minutes. The percentage of total ON time is selected using the rotary knob, which provides 30 separate detent positions for precise selection. Power input may be any standard 120 volt or 240 volt AC supply. The timer enclosure includes two slotted mounting holes on 5" centers and a 1/2" knockout for conduit connection. This timer is designed to function in dusty, ammonia and wash-down environments. It has an environmental operating temperature range of -10°C (14°F) to $+60^{\circ}\text{C}$ (140°F) and will withstand up to 6000 volt 3000 amp power surges.

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MODEL: T106R 24 HOUR DIAL TIME SWITCH

 LR3730

IN TYPE 3R RAINPROOF ENCLOSURE SUITABLE FOR POOL
EQUIPMENT CONTROL IF INSTALLED 5 FT. OR MORE FROM EDGE OF POOL

ONE NORMALLY OPEN - ONE NORMALLY CLOSED CONTACTS
MAY BE WIRED AS SINGLE POLE DOUBLE THROW.

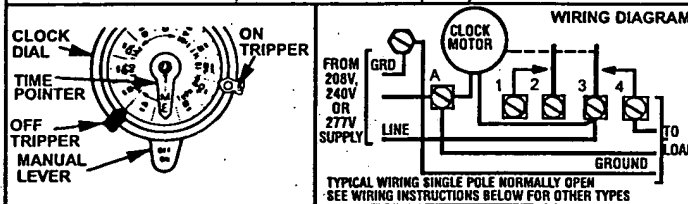
40 AMP. RESISTIVE INDUCTIVE, TUNGSTEN OR

1000 VA PILOT DUTY 120-277 VOLT AC;

2 HP (24 FLA)-120V AC; 5 HP (28 FLA)-240V AC.

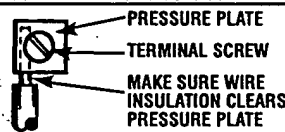
CLOCK MOTOR: 208-277 VOLTS - 60 HZ.

CLOCK MOTOR VOLTAGE AND CYCLE MUST BE AS SPECIFIED. TO
ORDER REPLACEMENT, INDICATE ART NO. (WG-) ON MOTOR COVER.



WIRING INSTRUCTIONS: To wire switch follow diagram above. To wire as **SINGLE POLE NORMALLY CLOSED**, move motor lead from terminal 3 to 1, and connect LINE to 1, LOAD to 2. To wire as **SINGLE POLE DOUBLE THROW**, install jumper (the same gauge as LINE wire) between terminals 2 and 3 and connect LINE to 2, LOADS to 1 and 4. NOTE: Line 2 if present is uninterrupted. Use COPPER wire only. For gauge selection and wire connection, see details below. Use 3/16 or larger screwdriver to tighten terminal screws firmly. (25 lb-in minimum). **REPLACE INSULATOR BEFORE TURNING ON ELECTRICITY.**

MINIMUM COPPER WIRE SIZE (AWG)	MAX. LOAD (AMP)	MIN. WIRE- ATHIN TEMP (°C)	75°C INSULATION MAX. MOTOR LOAD (AMP)			
			SINGLE PHASE		3 PHASE	
			120 V.	240 V.	208 V.	240 V.
14	15	60	1/2	2		
12	20	60	1	2 1/2	N/A	N/A
10	30	60	2	3		
8	40	75	-	5		



PROGRAMMING INSTRUCTIONS

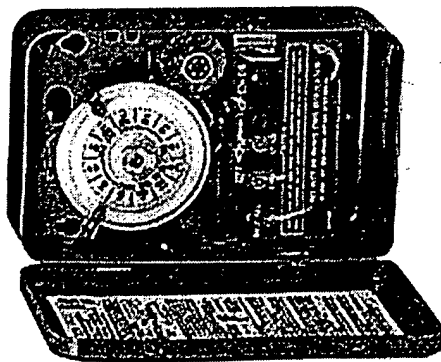
1. TO SET "ON" AND "OFF" TIMES: Hold trippers against edge of **CLOCK-DIAL**, pointing to time (AM or PM) when ON and OFF operations are desired, tighten tripper screws firmly. For additional tripper pairs on **CLOCK-DIAL** order 156T1978A.
2. TO SET TIME-OF-DAY: Pull **CLOCK-DIAL** outward. Turn in either direction and align the exact time-of-day on the **CLOCK-DIAL** (the time now, when switch is being put into operation) to the pointer. **DO NOT MOVE POINTER.**

OPERATING INSTRUCTIONS

- TO OPERATE SWITCH MANUALLY: Move **MANUAL LEVER** below **CLOCK-DIAL** left or right as indicated by arrows. This will not effect next operation.
- IN CASE OF POWER FAILURE, reset **CLOCK-DIAL** to proper time-of-day. See programming instructions.

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158TS10916 SPRING GROVE, ILLINOIS 60081-9698



The skipper series performs the same functions as the Century time switch plus it allows you to omit operation on selected day(s) of the week. Cutout screws provided with the time switch are inserted in the day skipper dial for days which operation is to be skipped.

The T170 series provides up to 10 ON/OFF operations every day with minimum ON/OFF operations of 1 hour and maximum ON time of 20 hours. All models are equipped with one CUTOFF tripper (which also serves as an "ON" tripper), one "OFF" tripper and three skipping screws.

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- ▶ Malibu Solar Lighting
- ▶ Home Protection & Controls
- ▶ Pool & Spa Controls
- ▶ Energy Controls
- ▶ Surge Suppression
- ▶ Weatherproof Products
- ▶ Professional Lighting
- ▶ Mosquito Products

Energy Controls

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Model	Switch	Clock Motor Volts	Amps/Pole	HP Rating	Instruction Sheets	Wiring Diagrams	Sample Spec
T171	SPST	125	40	2	Manual	Wiring Diagrams	Spec
T172	SPST	208- 277	40	5	Manual	Wiring Diagrams	Spec
T173	DPST	125	40	2	Manual	Wiring Diagrams	Spec
T174	DPST	208- 277	40	5		Wiring Diagrams	Spec
T175	INO/INC**	125	40	2		Wiring Diagrams	Spec
T176	INO/INC**	208- 277	40	5		Wiring Diagrams	Spec

T1471BR	4PST	125	40	2	<u>Wiring Diagrams</u>	<u>Spec</u>
T1472BR	4PST	208- 277	40	5	<u>Wiring Diagrams</u>	<u>Spec</u>
T1871BR2NO/2NC**		125	40	2	<u>Wiring Diagrams</u>	<u>Spec</u>
T1872BR2NO/2NC**		208- 277	40	5	<u>Wiring Diagrams</u>	<u>Spec</u>
T172B	SPST	208- 277	40	5	<u>Wiring Diagrams</u>	<u>Spec</u>
T1475BR	4PST	480	40	5	<u>Wiring Diagrams</u>	<u>Spec</u>

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MODEL: T171

24 HR. DIAL TIME SWITCH WITH "SKIPPER"
SINGLE POLE SINGLE THROW (SPST)
40 AMP. RESISTIVE, INDUCTIVE, TUNGSTEN OR
1000 VA. PILOT DUTY - 120/208/240 VOLT AC;
2 HP (24 FLA) - 120V. AC; 5 HP (28 FLA) - 240 V. AC.



CLOCK MOTOR: 110-125V. 60 HZ.
CLOCK MOTOR VOLTAGE AND CYCLE MUST BE AS SPECIFIED. TO ORDER REPLACEMENT, INDICATE PART NO. (WG--) ON MOTOR COVER.

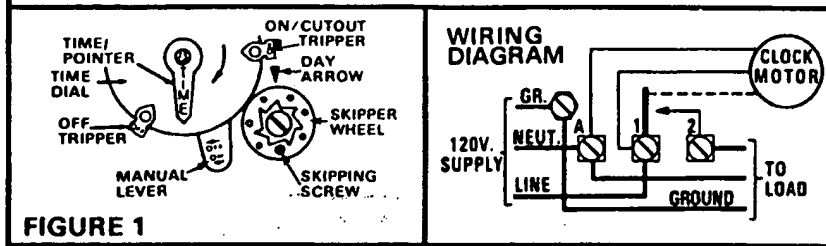


FIGURE 1

WIRING INSTRUCTIONS: To wire switch follow diagram above. Use solid or stranded COPPER only wire with insulation to suit installation. See gauge selection table for normal service applications. To make power connections remove 1/2 inch of insulation from wire ends. Insert bare ends of wire under the pressure plate of terminals. Use 3/16 or larger screwdriver to tighten terminal screws firmly. (25 lb-in minimum). **REPLACE INSULATOR BEFORE TURNING ON ELECTRICITY.**

MINIMUM COPPER WIRE SIZE (AWG)	MAX. LOAD (AMP)	MIN. INSUL- ATION TEMP (°C)	75°C INSULATION MAX. MOTOR LOAD (HP)			
			SINGLE PHASE		3 PHASE	
			120 V.	240 V.	208 V.	240 V.
14	15	60	1/4	2	N/A	N/A
12	20	60	1	2 1/4	N/A	N/A
10	30	60	2	3	N/A	N/A
8	40	75	-	5	N/A	N/A



PRESSURE PLATE
TERMINAL SCREW
MAKE SURE WIRE
INSULATION CLEARS
PRESSURE PLATE

PROGRAMMING INSTRUCTIONS

- TO SET "ON" AND "OFF" TIMES:** Hold trippers against edge of **CLOCK-DIAL**, pointing to time (AM or PM) when ON and OFF operations are desired, tighten tripper screws firmly. See caution below. For additional tripper pairs on **CLOCK-DIAL** order 156T1978A.
- TO SET TIME-OF-DAY:** Pull **CLOCK-DIAL** outward. Turn in either direction and align the exact time-of-day on the **CLOCK-DIAL** (the time now, when switch is being put into operation) to the pointer. **DO NOT MOVE POINTER.**
- TO SKIP OPERATION(S) ON SELECTED DAY(S):** Insert **SKIPPING SCREW(S)** in **SKIPPER WHEEL** for day(s) automatic operation(s) is/are NOT required. Tighten screws firmly. Move **MANUAL LEVER** to "OFF" and rotate **SKIPPER WHEEL** to locate correct day-of-week opposite **DAY ARROW**--"YESTERDAY" if **ON/CUTOUT TRIPPER** has not yet advanced wheel "TODAY" if it has.

OPERATING INSTRUCTIONS

- TO OPERATE SWITCH MANUALLY:** Move **MANUAL LEVER** below **CLOCK-DIAL** left or right as indicated by arrows. This will not effect next operation.
CAUTION: TO AVOID SLOW SWITCH ACTION FAILURE, DO NOT OPERATE SWITCH MANUALLY NOR PLACE A TRIPPER 4 HOURS PRIOR TO ON/CUTOUT TRIPPER SWITCHING.
- IN CASE OF POWER FAILURE,** reset **CLOCK-DIAL** to proper time-of-day. See programming instructions.

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158T6799

MADE AND PRINTED IN U.S.A.

MODEL: T172

24 HR. DIAL TIME SWITCH WITH "SKIPPER®"
SINGLE POLE SINGLE THROW (SPST)
40 AMP. RESISTIVE, INDUCTIVE, TUNGSTEN OR
1000 VA. PILOT DUTY - 120-277 VOLT AC;
2 HP (24 FLA) - 120V. AC; 5 HP (28 FLA) - 240 V. AC.



CLOCK MOTOR: 208-277V. 60 HZ.

CLOCK MOTOR VOLTAGE AND CYCLE MUST BE AS SPECIFIED. TO ORDER REPLACEMENT, INDICATE PART NO. (WG--) ON MOTOR COVER.

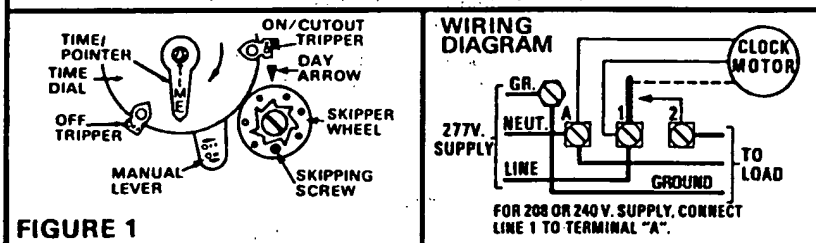


FIGURE 1

WIRING INSTRUCTIONS: To wire switch follow diagram above. Use solid or stranded CUPPER only wire with insulation to suit installation. See gauge selection table for normal service applications. To make power connections remove 1/2 inch of insulation from wire ends. Insert bare ends of wire under the pressure plate of terminals. Use 3/16 or larger screwdriver to tighten terminal screws firmly. (25 lb-in minimum). **REPLACE INSULATOR BEFORE TURNING ON ELECTRICITY.**

MINIMUM COPPER WIRE SIZE (AWG)	MAX. LOAD (AMP)	MIN. INSUL- ATION TEMP (°C)	75°C INSULATION MAX. MOTOR LOAD (HP)			
			SINGLE PHASE		3 PHASE	
			120 V.	240 V.	208 V.	240 V.
14	15	60	1/4	1/2	N/A	N/A
12	20	60	1	2 1/2	N/A	N/A
10	30	60	2	3	N/A	N/A
8	40	75	3	5	N/A	N/A



PRESSURE PLATE
TERMINAL SCREW
MAKE SURE WIRE
INSULATION CLEARS
PRESSURE PLATE

PROGRAMMING INSTRUCTIONS

1. TO SET "ON" AND "OFF" TIMES: Hold trippers against edge of CLOCK-DIAL, pointing to time (AM or PM) when ON and OFF operations are desired, tighten tripper screws firmly. See caution below. For additional tripper pairs on CLOCK-DIAL order 156T1978A.
2. TO SET TIME-OF-DAY: Pull CLOCK-DIAL outward. Turn in either direction and align the exact time-of-day on the CLOCK-DIAL (the time now, when switch is being put into operation) to the pointer. DO NOT MOVE POINTER.
3. TO SKIP OPERATION(S) ON SELECTED DAY(S): Insert SKIP- PING SCREW(S) in SKIPPER WHEEL for day(s) automatic operation(s) is/are NOT required. Tighten screws firmly. Move MANUAL LEVER to "OFF" and rotate SKIPPER WHEEL to locate correct day-of-week opposite DAY ARROW--"YESTERDAY" if ON/CUTOUT TRIPPER has not yet advanced wheel "TODAY" if it has.

OPERATING INSTRUCTIONS

- TO OPERATE SWITCH MANUALLY: Move MANUAL LEVER below CLOCK-DIAL left or right as indicated by arrows. This will not effect next operation.
CAUTION: TO AVOID SLOW SWITCH ACTION FAILURE, DO NOT OPERATE SWITCH MANUALLY NOR PLACE A TRIPPER 4 HOURS PRIOR TO ON/CUTOUT TRIPPER SWITCHING.
- IN CASE OF POWER FAILURE, reset CLOCK-DIAL to proper time-of-day. See programming instructions.

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158T6801

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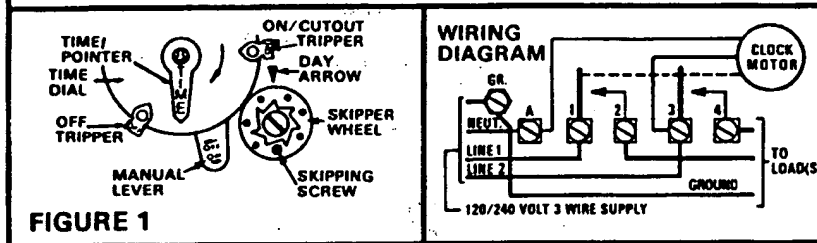
MODEL: T173

24 HR. DIAL TIME SWITCH WITH "SKIPPER®"
DOUBLE POLE SINGLE THROW (DPST)
40 AMP. RESISTIVE, INDUCTIVE, TUNGSTEN OR
1000 VA. PILOT DUTY PER POLE-120/208/277 VOLT AC;
2 HP (24 FLA) - 120V. AC; 5 HP (28 FLA) - 240 V. AC.



CLOCK MOTOR: 110-125V. 60 HZ.

CLOCK MOTOR VOLTAGE AND CYCLE MUST BE AS SPECIFIED. TO
ORDER REPLACEMENT, INDICATE PART NO. (WG--) ON MOTOR COVER.



WIRING INSTRUCTIONS: To wire switch follow diagram above. Use solid or stranded COPPER only wire with insulation to suit installation. See gauge selection table for normal service applications. To make power connections remove 1/2 inch of insulation from wire ends. Insert bare ends of wire under the pressure plate of terminals. Use 3/16 or larger screwdriver to tighten terminal screws firmly. (25 lb-in minimum). **REPLACE INSULATOR BEFORE TURNING ON ELECTRICITY.**

MINIMUM COPPER WIRE SIZE (AWG)	MAX. LOAD (AMP)	MIN. INSUL- ATION TEMP (°C)	75°C INSULATION MAX. MOTOR LOAD (HP)			
			SINGLE PHASE		3 PHASE	
			120 V.	240 V.	208 V.	240 V.
14	15	60	1/4	2		
12	20	60	1	2 1/2		
10	30	60	2	3	N/A	N/A
8	40	75		5		

PROGRAMMING INSTRUCTIONS

1. TO SET "ON" AND "OFF" TIMES: Hold trippers against edge of **CLOCK-DIAL**, pointing to time (AM or PM) when ON and OFF operations are desired, tighten tripper screws firmly. See caution below. For additional tripper pairs on **CLOCK-DIAL** order 156T1978A.
2. TO SET TIME-OF-DAY: Pull **CLOCK-DIAL** outward. Turn in either direction and align the exact time-of-day on the **CLOCK-DIAL** (the time now, when switch is being put into operation) to the pointer. **DO NOT MOVE POINTER.**
3. TO SKIP OPERATION(S) ON SELECTED DAY(S): Insert **SKIPPING SCREW(S)** in **SKIPPER WHEEL** for day(s) automatic operation(s) is/are NOT required. Tighten screws firmly. Move **MANUAL LEVER** to "OFF" and rotate **SKIPPER WHEEL** to locate correct day-of-week opposite **DAY ARROW**--"YESTERDAY" if **ON/CUTOUT TRIPPER** has not yet advanced wheel "TODAY" if it has.

OPERATING INSTRUCTIONS

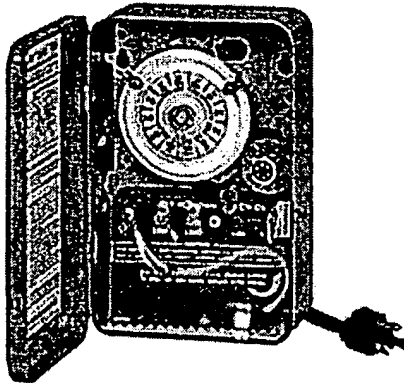
- TO OPERATE SWITCH MANUALLY: Move **MANUAL LEVER** below **CLOCK-DIAL** left or right as indicated by arrows. This will not effect next operation.
CAUTION: TO AVOID SLOW SWITCH ACTION FAILURE, DO NOT OPERATE SWITCH MANUALLY NOR PLACE A TRIPPER 4 HOURS PRIOR TO ON/CUTOUT TRIPPER SWITCHING.
- IN CASE OF POWER FAILURE, reset **CLOCK-DIAL** to proper time-of-day. See programming instructions.

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158T6803

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These portable cord connected time switches perform all the functions of the T100 and T170 series time switches plus they are completely portable eliminating the need for wiring. This time switch can be moved to new locations for different applications (indoor applications only). All models supplied complete with grounded cord set and receptacle installed.

- ▶ Malibu Low Voltage Lighting
- ▶ Malibu Solar Lighting
- ▶ Home Protection & Controls
- ▶ Pool & Spa Controls
- ▶ Energy Controls
- ▶ Surge Suppression
- ▶ Weatherproof Products
- ▶ Professional Lighting
- ▶ Mosquito Products

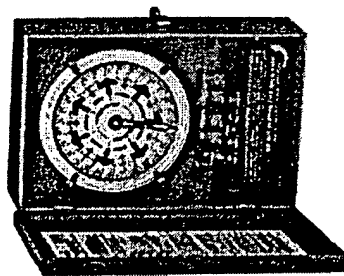
▶ Energy Controls

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- Mechanical Time Switches
- Photo Controls
- In-Wall Timers

Model	Switch	Clock Motor Volts 60 Hz	Amps/Pole	Skipper Wheel	Sample Spec
P171-30	SPST	125	15	Yes	Spec

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These heavy-duty mechanical time switches are designed for industrial, commercial and residential applications. These time switches provide a different "ON/OFF" program each day of the week. They also provide for 4 pole single throw and 4 pole (2NO/2NC) switching. This series provides true 7-day load control with minimum ON and minimum OFF times of 3-1/2 hours. The "BC" models with carry-over provide a carry-over of 16 hours minimum to maintain accurate load control even during power failure. When power resumes, the carry-over automatically rewinds itself. Only 1 hour is required to rewind the carry-over for each 2 hours of outage. The carry-over models are ideal in applications where true 7-day control is required and where power outages occur entailing costly resetting.

- ▶ Malibu Low Voltage Lighting
- ▶ Malibu Solar Lighting
- ▶ Home Protection & Controls
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Model	CarryoverSwitch	Clock		Motor On Volts 60 Hz	Min. Off Time Hours	Max. Operations per day	Amps/pole	Wiring		Sample
		Min.	Max.					Diagrams	Spec	
T7401BC	Yes	4PST	125	3.5	3.5	3	40	Wiring Diagrams	Spec	
T7402BC	Yes	4PST	208- 277	3.5	3.5	3	40	Wiring Diagrams	Spec	
T7801BC	Yes	2NO/2NC	125	3.5	3.5	3	40	Wiring Diagrams	Spec	
T7802BC	Yes	2NO/2NC	208- 277	3.5	3.5	3	40	Wiring Diagrams	Spec	
T7401B	No	4PST	125	3.5	3.5	3	40	Wiring Diagrams	Spec	
T7402B	No	4PST	208- 277	3.5	3.5	3	40	Wiring Diagrams	Spec	

T7801B	No	2NO/2NC	125	3.5	3.5	3	40	<u>Wiring</u>	<u>Spec</u>
				Hours	Hours			<u>Diagrams</u>	
T7802B	No	2NO/2NC	208-	3.5	3.5	3	40	<u>Wiring</u>	<u>Spec</u>
			277	Hours	Hours			<u>Diagrams</u>	
T7805B	No	2NO/2NC	480	3.5	3.5	3	40	<u>Wiring</u>	<u>Spec</u>
				Hours	Hours			<u>Diagrams</u>	

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- ▶ Professional Lighting
- ▶ Mosquito Products

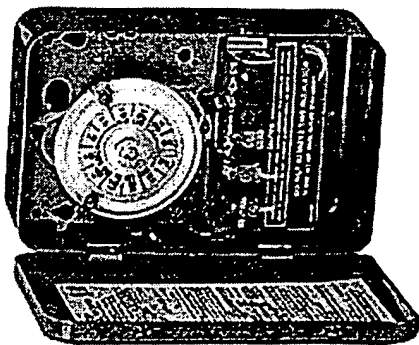
▶ Energy Controls

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This heavy duty mechanical time switch is designed for industrial, commercial and residential applications. This time switch has the highest horsepower ratings in the industry for loads up to 40 amps resistive from 120 to 480 volts providing direct 24 hour time switch control of most loads.

This series provides 1 to 12 "ON/OFF" operations each day with minimum ON/OFF times of 1 hour. All models are equipped with one "ON" and one "OFF" tripper.



Model # w/ Plastic Case	Model # w/ See Thru Cover	Switch	Clock Motor Volts 60 Hz	Amps/Pole	HP Rating	Instruction Sheets	Wiring Diagrams	Sample Spec
T101	T101PT101PCD82	SPST	125	40	2	Manual	Wiring Diagrams	Spec
T102	T102P	SPST	208- 277	40	5		Wiring Diagrams	Spec
T103	T103PT103PCD82	DPST	125	40	2	Manual	Wiring Diagrams	Spec
T104	T104PT104PCD82	DPST	208- 277	40	5	Manual	Wiring Diagrams	Spec
T105	INO/INC	INO/INC	125	40	2	Manual	Wiring Diagrams	Spec
T106R	INO/INC	INO/INC	208- 277	40	5	Manual	Wiring Diagrams	Spec

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MODEL: T101

24 HOUR DIAL TIME SWITCH

 LR3730

SINGLE POLE SINGLE THROW (SPST)

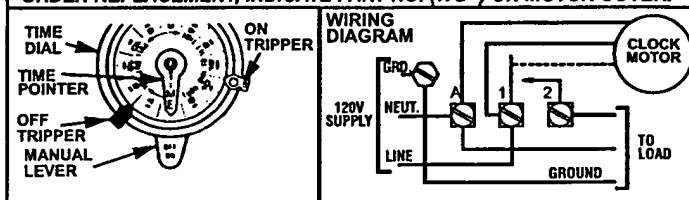
40 AMP. RESISTIVE, INDUCTIVE, TUNGSTEN

OR 1000 VA PILOT DUTY: 120/208/240 VOLT AC;

2 HP (24 FLA) - 120V AC; 5 HP (28 FLA) - 240V AC

CLOCK MOTOR: 110-125 VOLTS - 60 HZ.

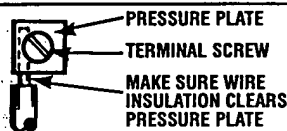
CLOCK MOTOR VOLTAGE AND CYCLE MUST BE AS SPECIFIED. TO ORDER REPLACEMENT, INDICATE PART NO. (WG-) ON MOTOR COVER.



WIRING INSTRUCTIONS: To wire switch follow diagram above. Use solid or stranded **COPPER** only wire with insulation to suit installation. See gauge selection table for normal service applications. To make power connections remove 1/2 inch of insulation from wire ends. Insert bare ends of wire under the pressure plate of terminals. Use 3/16 or larger screwdriver to tighten terminal screws firmly. (25 lb-in minimum).

REPLACE INSULATOR BEFORE TURNING ON ELECTRICITY.

MINIMUM COPPER WIRE SIZE (AWG)	MAX. LOAD (AMP)	MIN. INSUL- ATION TEMP (°C)	75°C INSULATION MAX. MOTOR LOAD (HP)			
			SINGLE PHASE		3 PHASE	
			120 V.	240 V.	208 V.	240 V.
14	15	60	1/2	2		
12	20	60	1	2 1/2		
10	30	60	2	3	N/A	N/A
8	40	75	-	5		

**PROGRAMMING INSTRUCTIONS**

1. TO SET "ON" AND "OFF" TIMES: Hold trippers against edge of **CLOCK-DIAL**, pointing to time (AM or PM) when ON and OFF operations are desired, tighten tripper screws firmly. For additional tripper pairs on **CLOCK-DIAL** order 156T1978A.
2. TO SET TIME-OF-DAY: Pull **CLOCK-DIAL** outward. Turn in either direction and align the exact time-of-day on the **CLOCK-DIAL** (the time now, when switch is being put into operation) to the pointer. **DO NOT MOVE POINTER.**

OPERATING INSTRUCTIONS

- TO OPERATE SWITCH MANUALLY: Move **MANUAL LEVER** below **CLOCK-DIAL** left or right as indicated by arrows. This will not effect next operation.
- IN CASE OF POWER FAILURE, reset **CLOCK-DIAL** to proper time-of-day. See programming instructions.

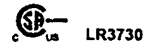
INTERMATIC INCORPORATED
 SPRING GROVE, ILLINOIS 60081-9698

158TS10941

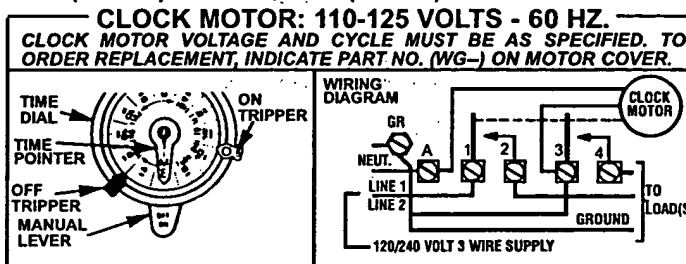
MODEL: T103

24 HOUR DIAL TIME SWITCH

DOUBLE POLE SINGLE THROW (DPST)



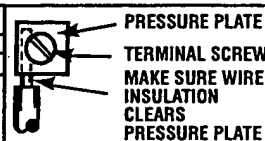
40 AMP. RESISTIVE, INDUCTIVE, TUNGSTEN OR
1000 VA PILOT DUTY EACH POLE 120/208.240 VOLT AC;
2 HP (24 FLA)-120V AC; 5 HP (28 FLA)-240V AC.



WIRING INSTRUCTIONS: To wire switch follow diagram above. Use solid or stranded COPPER only wire with insulation to suit installation. See gauge selection table for normal service applications. To make power connections remove 1/2 inch of insulation from wire ends. Insert bare ends of wire under the pressure plate of terminals. Use 3/16 or larger screwdriver to tighten terminal screws firmly. (25 lb-in minimum)

REPLACE INSULATOR BEFORE TURNING ON ELECTRICITY.

MINIMUM COPPER WIRE SIZE (AWG)	MAX. LOAD (AMP)	MIN. INSUL. ATION TEMP (°C)	75°C INSULATION MAX. MOTOR LOAD (HP)			
			SINGLE PHASE		3 PHASE	
			120 V.	240 V.	208 V.	240 V.
14	15	60	1/2	2		
12	20	60	1	2 1/2		
10	30	60	2	3	N/A	N/A
8	40	75		5		



PROGRAMMING INSTRUCTIONS

1. TO SET "ON" AND "OFF" TIMES: Hold trippers against edge of CLOCK-DIAL, pointing to time (AM or PM) when ON and OFF operations are desired, tighten tripper screws firmly. For additional tripper pairs on CLOCK-DIAL order 156T1978A.
2. TO SET TIME-OF-DAY: Pull CLOCK-DIAL outward. Turn in either direction and align the exact time-of-day on the CLOCK-DIAL (the time now, when switch is being put into operation) to the pointer. **DO NOT MOVE POINTER.**

OPERATING INSTRUCTIONS

- TO OPERATE SWITCH MANUALLY: Move MANUAL LEVER below CLOCK-DIAL left or right as indicated by arrows. This will not effect next operation.
- IN CASE OF POWER FAILURE, reset CLOCK-DIAL to proper time-of-day. See programming instructions.

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SPRING GROVE, ILLINOIS 60081-9698

158TS10946

MODEL: T104

24 HOUR DIAL TIME SWITCH

 LR3730

DOUBLE POLE SINGLE THROW (DPST)

40 AMP. RESISTIVE EACH POLE 120-480 VOLT AC;

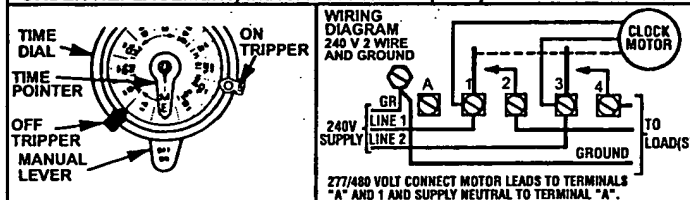
40 AMP. INDUCTIVE OR TUNGSTEN OR 1000 VA

PILOT DUTY EACH POLE 120V-277V AC;

2 HP (24 FLA)-120V AC; 5 HP (28 FLA)-240V AC.

CLOCK MOTOR: 208-277 VOLTS - 60 HZ.

CLOCK MOTOR VOLTAGE AND CYCLE MUST BE AS SPECIFIED. TO ORDER REPLACEMENT, INDICATE PART NO. (WG-) ON MOTOR COVER.



WIRING INSTRUCTIONS: To wire switch follow diagram above. Use solid or stranded **COPPER only** wire with insulation to suit installation. See gauge selection table for normal service applications. To make power connections remove 1/2 inch of insulation from wire ends. Insert bare ends of wire under the pressure plate of terminals. Use 3/16 or larger screwdriver to tighten terminal screws firmly. (25 lb-in minimum).

REPLACE INSULATOR BEFORE TURNING ON ELECTRICITY.

MINIMUM COPPER WIRE SIZE (AWG)	MAX. LOAD (AMP)	MIN. INSUL- ATION TEMP (°C)	75°C INSULATION MAX. MOTOR LOAD (HP)			
			SINGLE PHASE		3 PHASE	
			120 V.	240 V.	208 V.	240 V.
14	15	60	1/2	2		
12	20	60	1	2 1/2	N/A	N/A
10	30	60	2	3		
8	40	75	-	5		



PROGRAMMING INSTRUCTIONS

1. TO SET "ON" AND "OFF" TIMES: Hold trippers against edge of **CLOCK-DIAL**, pointing to time (AM or PM) when ON and OFF operations are desired, tighten tripper screws firmly. For additional tripper pairs on **CLOCK-DIAL** order 156T1978A.
2. TO SET TIME-OF-DAY: Pull **CLOCK-DIAL** outward. Turn in either direction and align the exact time-of-day on the **CLOCK-DIAL** (the time now, when switch is being put into operation) to the pointer. **DO NOT MOVE POINTER.**

OPERATING INSTRUCTIONS

- TO OPERATE SWITCH MANUALLY: Move **MANUAL LEVER** below **CLOCK-DIAL** left or right as indicated by arrows. This will not effect next operation.
- IN CASE OF POWER FAILURE, reset **CLOCK-DIAL** to proper time-of-day. See programming instructions.

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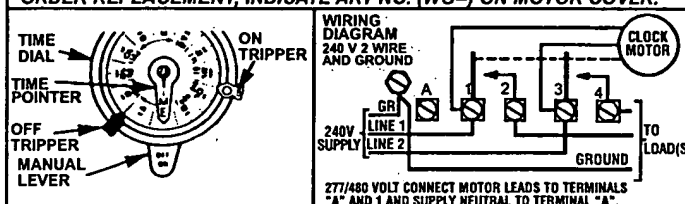


MODEL: T105 24 HOUR DIAL TIME SWITCH

ONE NORMALLY OPEN - ONE NORMALLY CLOSED CONTACTS
MAY BE WIRED AS SINGLE POLE DOUBLE THROW
40 AMP. RESISTIVE, INDUCTIVE, TUNGSTEN OR
1000 VA. PILOT DUTY PER POLE - 120/208/240VOLT AC;
2 HP (24 FLA) - 120V AC; 5 HP (28 FLA) - 240V AC.

CLOCK MOTOR: 110-125 VOLTS - 60 HZ.

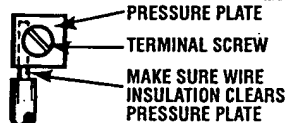
CLOCK MOTOR VOLTAGE AND CYCLE MUST BE AS SPECIFIED. TO
ORDER REPLACEMENT, INDICATE ART NO. (WG-) ON MOTOR COVER.



WIRING INSTRUCTIONS: To wire switch follow diagram above. To wire as **SINGLE POLE NORMALLY CLOSED**, move clock motor lead from terminal 3 to 1, and connect **LINE** to 1, **LOAD** to 1. To wire as **SINGLE POLE DOUBLE THROW**, install jumper (the same gauge as Line wire) between 2 and 3 and connect **LINE** to 2, **LOADS** to 1 and 4. **NEUTRAL** connection always as shown. Use **COPPER** wire only. For larger screwdriver, *tighten terminal screws firmly (25 lb-in minimum).*

REPLACE INSULATOR BEFORE TURNING ON ELECTRICITY.

MINIMUM COPPER WIRE SIZE (AWG)	MAX. LOAD (AMP)	MIN. INSUL- ATION TEMP (°C)	75°C INSULATION MAX. MOTOR LOAD (HP)			
			SINGLE PHASE		3 PHASE	
			120 V.	240 V.	208 V.	240 V.
14	15	60	1/2	2		
12	20	60	1	2 1/2	N/A	N/A
10	30	60	2	3		
8	40	75		5		



PROGRAMMING INSTRUCTIONS

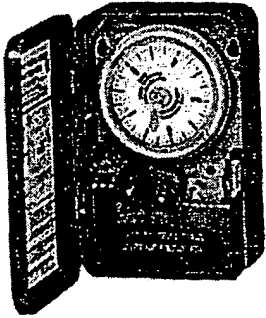
1. TO SET "ON" AND "OFF" TIMES: Hold trippers against edge of **CLOCK-DIAL**, pointing to time (AM or PM) when **ON** and **OFF** operations are desired, tighten tripper screws firmly. For additional tripper pairs on **CLOCK-DIAL** order 156T1978A.
2. TO SET TIME-OF-DAY: Pull **CLOCK-DIAL** outward. Turn in either direction and align the exact time-of-day on the **CLOCK-DIAL** (the time now, when switch is being put into operation) to the pointer. **DO NOT MOVE POINTER.**

OPERATING INSTRUCTIONS

- TO OPERATE SWITCH MANUALLY: Move **MANUAL LEVER** below **CLOCK-DIAL** left or right as indicated by arrows. This will not effect next operation.
- IN CASE OF POWER FAILURE, reset **CLOCK-DIAL** to proper time-of-day. See programming instructions.

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These timers provide repeat cycling for applications which require as short as 2-1/2 second "ON" times. Models provide for complete dial cycle every 5, 10 or 30 minutes and every 1 or 4 hours with tripper actuating times of 2-1/2, 5, 15, 30 or 120 seconds duration, respectively. Ten combination "ON/OFF" trippers supplied with each switch. Dials on all models have 120 slots.

- ▶ Malibu Low Voltage Lighting
- ▶ Malibu Solar Lighting
- ▶ Home Protection & Controls
- ▶ Pool & Spa Controls
- ▶ Energy Controls
- ▶ Surge Suppression
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? Technical Support

Model	Switch	Clock Motor Volts	Dial Cycle Time	Tripper Actuating Time	Amps	Instruction Sheets	Wiring Diagrams	Sample Spec
C8815	SPDT	125	10 Min.	5 Sec.	20	Manual	Wiring Diagrams	Spec
C8835	SPDT	125	30 Min.	15 Sec.	20	Manual	Wiring Diagrams	Spec
C8865	SPDT	125	1 Hr.	30 Sec.	20	Manual	Wiring Diagrams	Spec
C8845	SPDT	125	4 Hr.	120 Sec.	20	Manual	Wiring Diagrams	Spec
C8866	SPDT	250	1 Hr.	30 Sec.	20	Manual	Wiring Diagrams	Spec

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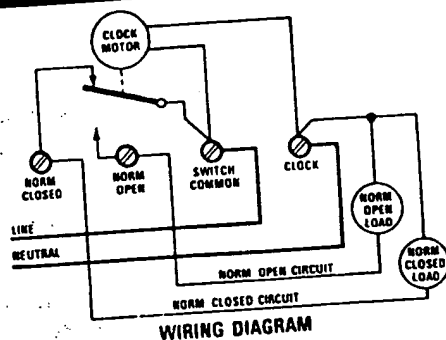
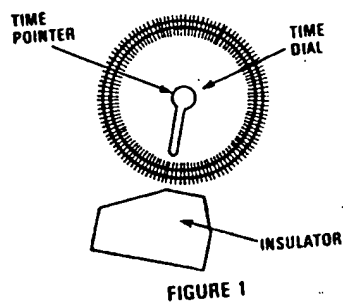
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INTERMATIC®
TIME CONTROLS

MODEL: C8815

REPEAT CYCLE TIMER

DIAL CYCLE: 10 MINUTES
ACTUATING TIME - EACH TRIPPER: 5 SECONDS
SINGLE POLE DOUBLE THROW
SWITCH RATING: 20 AMP. 125-480 VOLTS A.C. ½HP-125V, 1HP-250V.
CLOCK MOTOR: 125 VOLTS - 60 HZ.



WIRING INSTRUCTIONS:

This Time Switch can be wired to control two circuits as single pole double throw, or to control one circuit as single pole single throw, either normally closed or normally open. To wire Time Switch as desired, see wiring diagram above.

PROGRAMMING INSTRUCTIONS

- 1. SET PROGRAM TIME:** Place tripper(s) into dial at desired time(s) operation(s) is/are required.
 - **ON TIME:** First tripper turns on the load for 6-8 seconds. Each additional tripper will lengthen the on time by 5 seconds.
 - **OFF TIME:** First tripper omitted turns off the load for 2-4 seconds. Each additional space will lengthen the off time by 5 seconds.
- 2. TO SET DIAL,** Turn dial in **CLOCKWISE** direction only. The "TIME POINTER" indicates position at which switch action takes place.

TO REMOVE MECHANISM FROM CASE, Disconnect electricity and all wiring. Depress retainer spring at upper left, or unscrew mounting screws, then grasp dial and pull mechanism out.

IN CASE OF POWER FAILURE, Reset dial. See Step (2) of programming instructions.

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158T6272

INTERMATIC®
TIME CONTROLS



MODEL: C8835 REPEAT CYCLE TIMER

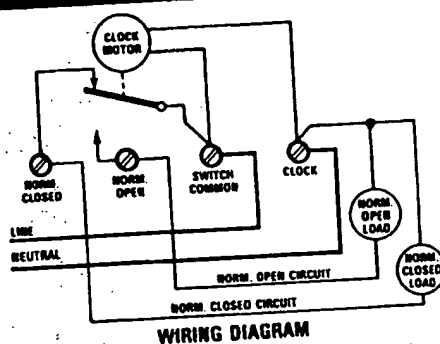
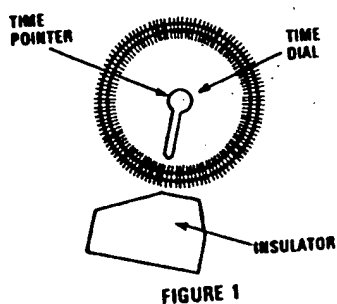


DIAL CYCLE: 30 MINUTES
ACTUATING TIME - EACH TRIPPER 15 SECONDS

SINGLE POLE DOUBLE THROW

SWITCH RATING: 20 AMP. 125-480 VOLTS A.C. ½ HP-125V, 1HP-50V.

CLOCK MOTOR: 125 VOLTS - 60 HZ.



WIRING INSTRUCTIONS:

This Time Switch can be wired to control two circuits as single pole double throw, or to control one circuit as single pole single throw, either normally closed or normally open. To wire Time Switch as desired, see wiring diagram above.

PROGRAMMING INSTRUCTIONS

1. **SET PROGRAM TIME:** Place tripper(s) into dial at desired time(s) operation(s) is/are required.
 - **ON TIME:** First tripper turns on the load for 16-20 seconds. Each additional tripper will lengthen the on time by 15 seconds.
 - **OFF TIME:** First tripper omitted turns off the load for 10-14 seconds. Each additional space will lengthen the off time by 15 seconds.
2. **TO SET DIAL,** Turn dial in **CLOCKWISE** direction only. The "TIME POINTER" indicates position at which switch action takes place.

TO REMOVE MECHANISM FROM CASE, Disconnect electricity and all wiring. Depress retainer spring at upper left, or unscrew mounting screws, then grasp dial and pull mechanism out.
IN CASE OF POWER FAILURE, Reset dial, See Step (2) of programming instructions.

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158T6273



INTERMATIC® TIME CONTROLS MODEL: C8865

REPEAT CYCLE TIMER



DIAL CYCLE: 1 HOUR
ACTUATING TIME - EACH TRIPPER: 30 SECONDS
SINGLE POLE DOUBLE THROW
SWITCH RATING: 20 AMP. 125-480 VOLTS A.C. ½HP-125V, 1 HP-250V.
CLOCK MOTOR: 125 VOLTS - 60 HZ.

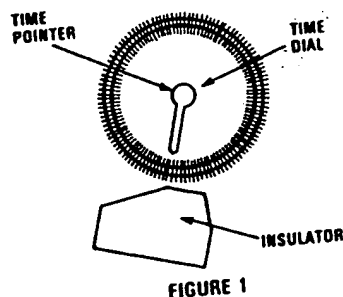
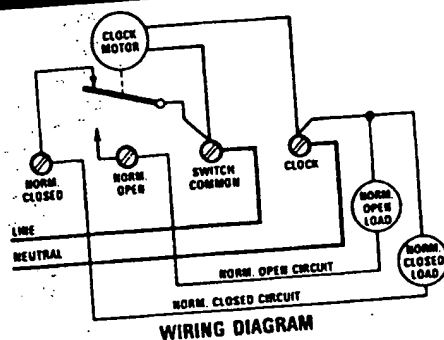


FIGURE 1



WIRING INSTRUCTIONS:

This Time Switch can be wired to control two circuits as single pole double throw, or to control one circuit as single pole single throw, either normally closed or normally open. To wire Time Switch as desired, see wiring diagram above.

PROGRAMMING INSTRUCTIONS

1. **SET PROGRAM TIME:** Place tripper(s) into dial at desired time(s)
 - **ON TIME:** First tripper turns on the load for 32-40 seconds. Each additional tripper will lengthen the on time by 30 seconds.
 - **OFF TIME:** First tripper omitted turns off the load for 20-28 seconds. Each additional space will lengthen the off time by 30 seconds.
2. **TO SET DIAL,** Turn dial in **CLOCKWISE** direction only. The "TIME POINTER" indicates position at which switch action takes place.

TO REMOVE MECHANISM FROM CASE, Disconnect electricity and all wiring. Depress retainer spring at upper left, or unscrew mounting screws, then grasp dial and pull mechanism out.
IN CASE OF POWER FAILURE, Reset dial, See Step (2) of programming instructions.

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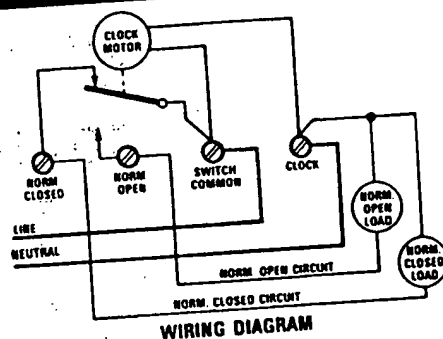
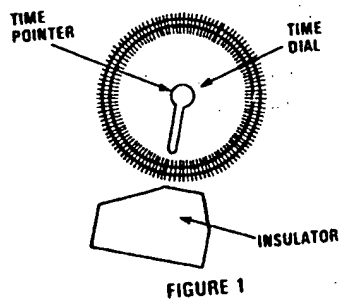
INTERMATIC® TIME CONTROLS

MODEL: C8845

REPEAT CYCLE TIMER



DIAL CYCLE: 4 HOURS
 ACTUATING TIME - EACH TRIPPER: 2 MINUTES
SINGLE POLE DOUBLE THROW
 SWITCH RATING: 20 AMP. 125-480 VOLTS A.C., ½HP-125V., 1HP-250V.
CLOCK MOTOR: 125 VOLTS - 60 HZ.



WIRING INSTRUCTIONS:

This Time Switch can be wired to control two circuits as single pole double throw, or to control one circuit as single pole single throw, either normally closed or normally open. To wire Time Switch as desired, see wiring diagram above.

PROGRAMMING INSTRUCTION

- SET PROGRAM TIME:** Place tripper(s) into dial at desired time(s) operation(s) is/are required.
 - **ON TIME:** First tripper turns on the load for 130-160 seconds. Each additional tripper will lengthen the on time by 120 seconds.
 - **OFF TIME:** First tripper omitted turns off the load for 80-110 seconds. Each additional space will lengthen the off time by 120 seconds.
- TO SET DIAL,** Turn dial in **CLOCKWISE** direction only. The "TIME POINTER" indicates position at which switch action takes place.

TO REMOVE MECHANISM FROM CASE, Disconnect electricity and all wiring. Depress retainer spring at upper left, or unscrew mounting screws, then grasp dial and pull mechanism out.

IN CASE OF POWER FAILURE, Reset dial. See Step (2) of programming instructions.

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158T6288

INTERMATIC® MODEL: C8866
TIME CONTROLS



REPEAT CYCLE TIMER



DIAL CYCLE: 1 HOUR
ACTUATING TIME - EACH TRIPPER: 30 SECONDS

SINGLE POLE DOUBLE THROW

SWITCH RATING: 20 AMP, 125-480 VOLTS A.C., ½HP-125V, 1HP-250V.

CLOCK MOTOR: 208-277 VOLTS, 60 HZ.

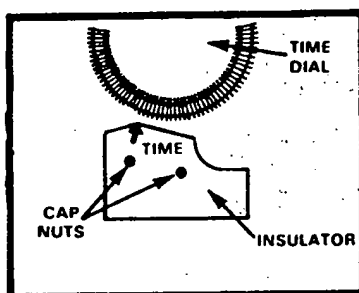
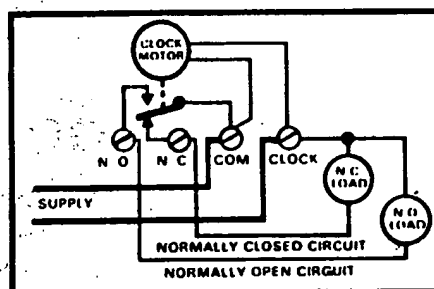


FIG. 1



WIRING DIAGRAM

WIRING INSTRUCTIONS:

This Time Switch can be wired to control two circuits as single pole double throw, or to control one circuit as single pole single throw. Either normally open (NO) or normally closed (NC). To wire Time Switch as desired, see wiring diagram above.

PROGRAMMING INSTRUCTIONS

1. **SET PROGRAM TIME:** Place tripper(s) into dial at desired time(s) operation(s) is/are required.
 - **ON TIME:** First tripper turns on the load for 32-40 seconds. Each additional tripper will lengthen the on time by 30 seconds.
 - **OFF TIME:** First tripper omitted turns off the load for 20-28 seconds. Each additional space will lengthen the off time by 30 seconds.
2. **TO SET DIAL,** Turn dial in **CLOCKWISE** direction only. The "TIME" arrow on insulator indicates point at which switch action takes place.

TO REMOVE MECHANISM FROM CASE, Disconnect electricity and all wiring. Depress retainer spring at upper left, or unscrew mounting screws, then grasp dial and pull mechanism out.

IN CASE OF POWER FAILURE, Reset dial. See Step (2) of programming instructions.

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158T4312

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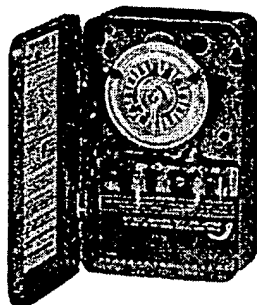


- ▶ Malibu Low Voltage Lighting
- ▶ Malibu Solar Lighting
- ▶ Home Protection & Controls
- ▶ Pool & Spa Controls
- ▶ Energy Controls
- ▶ Surge Suppression
- ▶ Weatherproof Products
- ▶ Professional Lighting
- ▶ Mosquito Products

▶ Energy Controls

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The WH40 and WH80 provides a convenient external override switch. Utilities in some areas of the country offer two electric rates for residential or commercial customers. One rate has the regular daytime electrical rate, the other is "off peak" rate. The off peak rate provides customers with lower-priced electricity during the nighttime and weekend periods. The special construction of the WH80, incorporating a skipper function, enables the customer to have all the hot water required, especially on weekends when the time switch permits 24 hour a day operation automatically. Since the WH80 has normally closed contacts, the water heater will remain ON during the weekend when the skipper is set to do so. Three sets of ON/OFF trippers (and three skipper screws for model WH80) are supplied.

Model	Switch	Clock Motor Volts	Watts	External Switch	Amps/pole	Instruction Sheets	Wiring Diagrams	Sample Spec
T104- 20	DPST	208- 240	10000	No	40		Wiring Diagrams	Spec
WH40	DPST	250	10000	Yes	40	Manual	Wiring Diagrams	Spec
WH21						Manual		

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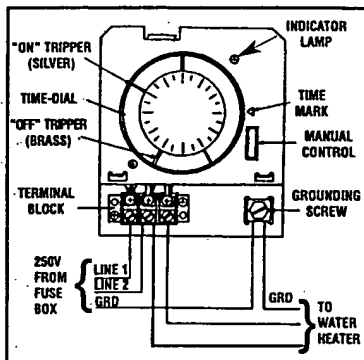
WH21

ELECTRIC WATER HEATER TIME SWITCH
SINGLE POLE SINGLE THROW (SPST)
25 AMP (6250 WATT) RESISTIVE, 1500 WAT TUNGSTEN,
2 H.P. (20 FLA/80 LRA) - 208 OR 250 VOLT, 60 HZ.



CAUTION: THIS SINGLE POLE TIMER SWITCH BREAKS ONLY ONE (HOT) LINE CONNECTED TO THE WATER HEATER. THE OTHER (HOT) LINE IS UNINTERRUPTED FOR YOUR SAFETY. DISCONNECT ALL ELECTRIC POWER AT THE MAIN PANEL BEFORE SERVICING THIS SWITCH OR THE WATER HEATER IT IS CONNECTED TO.

This time switch will repeat a pre-set schedule daily except when the **EXTERNAL MANUAL PUSH-BUTTON** is used. This manual button permits the user to turn the water heater **ON** and **OFF** ahead of the schedule. The Time Switch will resume the *pre-set* program by the next scheduled **ON** or **OFF** operation. The diagram on the right shows the mechanism and wiring of this time switch. The **TIME-MARK** is used to line up the correct time-of-day on the **TIME-DIAL**. The **ON** and **OFF** TRIPPERS turn the water heater **ON** and **OFF** at the times indicated by their respective position on the **TIME-DIAL**.



• **TO SET PROGRAM**

1. Grasp time-dial firmly. **PULL** and remove time-dial completely from timer.
 2. Remove all **ON** trippers (silver) and **OFF** trippers (brass). Use pencil or paper clip if necessary.
 3. Insert **OFF** trippers (brass) in slots for desired **OFF** times, but **NOT CLOSER** than 2 hours apart.
 4. Insert **ON** trippers (silver) in slots for desired **ON** times, but **NOT CLOSER** than 2 hours apart. **ON** and **OFF** trippers may be spaced 1/2 hour apart from each other.
 5. Replace time dial. **PUSH IN FIRMLY**. If any trippers are near the time-mark, rotate time-dial to avoid interference with mechanism inside.
 6. Turn time-dial **CLOCKWISE** one or more revolutions until correct time-of-day is opposite time-mark.
- **TO STOP AUTOMATIC OPERATION** (But without stopping timer), **PULL** outward on time-dial until it clicks.
- **TO RESUME AUTOMATIC OPERATION**, **PUSH** inward on dial.
- **AFTER POWER FAILURE** (or if water heater was disconnected at main panel) time-dial must be reset to correct time-of-day.

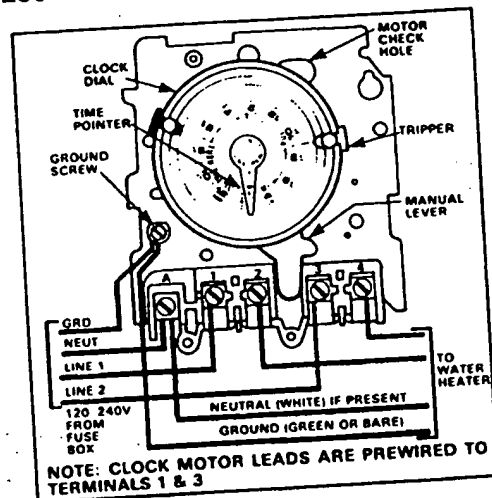
TO SECURE EXTRA TRIPPERS ORDER No. 156T1945A FOR A SET OF TWO (2) ON AND TWO (2) OFF TRIPPERS.

INTERMATIC INCORPORATED, SPRING GROVE, IL 60081-9698
 158WH11638

WH40 ELECTRIC WATER HEATER TIME SWITCH **DOUBLE POLE, 10,000 WATTS (40 AMP) MAX., 250 VOLT - 60 HZ.**



This Time Switch will repeat a preset schedule daily, except when the **EXTERNAL MANUAL LEVER** is used. This manual lever permits the user to turn the water heater **ON** and **OFF** *ahead* of the schedule. The Time Switch will resume the preset program by the next scheduled **ON** or **OFF** operation. **NOTE:** The manual lever is inoperative for 15 minutes immediately after the automatic operation. The diagram on the right shows the mechanism and wiring of this Time Switch. The **TIME POINTER** is used to line up the correct time-of-day on the **CLOCK-DIAL**. The **ON** and **OFF** **TRIPPERS** turn water heater **ON** and **OFF** at the times indicated by their respective position on the **CLOCK-DIAL**.



TO SET PROGRAM... *First*, mount silver finished (ON) trippers at times you wish water heater to start operating. Place black (OFF) trippers at times you want to turn water heater OFF. Fasten trippers to dial by pushing them against the edge of the clock dial, then turning screws **TIGHT** with fingers. *Second*, **PULL** clock dial out (toward you) and turn in either direction until correct time-of day (the time now, when switch is being put into operation) is directly under the time pointer. *Do not move pointer.* *Third*, close Time Switch cover. **Make sure it is latched and locked, if needed.** **AFTER POWER FAILURE** (or if water heater was disconnected at the main panel), you must reset clock dial to the proper time-of day. **TO SUSPEND AUTOMATIC OPERATION** - Remove trippers from dial. Set manual lever as desired. **CAUTION:** *Always disconnect power at main panel before servicing this Switch or the water heater.*

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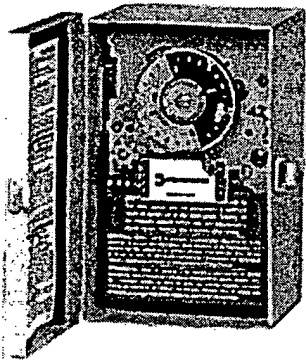
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- ▶ Malibu Low Voltage Lighting
- ▶ Malibu Solar Lighting
- ▶ Home Protection & Controls
- ▶ Pool & Spa Controls
- ▶ Energy Controls
- ▶ Surge Suppression
- ▶ Weatherproof Products
- ▶ Professional Lighting
- ▶ Mosquito Products

▶ Energy Controls

- Electronic Time Switches
- Mechanical Time Switches
- Photo Controls
- In-Wall Timers



This time switch is self adjusting for seasonal changes to provide energy saving control of outdoor lighting. One setting provides you lights ON at sunset, lights OFF at sunrise or between 8:30 P.M. and 2:30 A.M. all year long. The astronomic dial; automatically adjusts itself as the days grow shorter or longer. A skipper provides lighting control to be omitted on selected day(s) of the week. The carry-over is designed to maintain preset schedule during power outages for a minimum of 16 hours. When power resumes, the carry-over automatically rewinds itself. Only 1 hour is required to rewind the carry-over for each 2 hours of outage.

These switches are ideal in areas where power outages occur and entail costly resetting. The 3PST switch configuration provides for control of 3-phase lighting. Three skipper screws are furnished. These switches come standard in a rainproof NEMA 3R enclosure for outdoor installations.

Model	Switch	Clock Motor Volts 60 Hz	Amps/pole	Wiring Diagrams	Sample Spec
V45471R	3PST	125	40	Wiring Diagrams	Spec

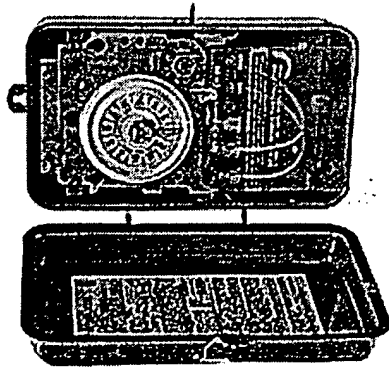
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These models provide the same features as the T170 Series Skipper models for omitting operation on selected day(s) of the week. The T170CR series also provides a minimum of 16 hours of carry-over for maintaining preset schedules during power failures. The carry-over automatically rewinds when power resumes. Only one hour is required to rewind the carry-over for each two hours of power outage. All models are equipped with one CUTOUT tripper (which also serves as "ON" tripper), one "OFF" tripper and three skipper screws. The 4PST models are ideal for 3-phase load control.

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- Malibu Solar Lighting
- Home Protection & Controls
- Pool & Spa Controls
- Energy Controls
- Surge Suppression
- Weatherproof Products
- Professional Lighting
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Model	Switch	Clock Motor Volts 60 Hz	Amps/Pole Rating	HP	Instruction		Sample	
					Wiring Sheets	Diagrams	Wiring Diagrams	Spec
T171CR	SPST	125	40	2	Manual		<u>Wiring Diagrams</u>	<u>Spec</u>
T172CR	SPST	208- 277	40	5			<u>Wiring Diagrams</u>	<u>Spec</u>
T173CR	DPST	125	40	2			<u>Wiring Diagrams</u>	<u>Spec</u>
T174CR	DPST	208- 277	40	5			<u>Wiring Diagrams</u>	<u>Spec</u>
T175CR	1NO/1NC**	125	40	2			<u>Wiring Diagrams</u>	<u>Spec</u>
T1471BCR	4PST	125	40	2			<u>Wiring Diagrams</u>	<u>Spec</u>
T1871BCR2NO/2NC**		125	40	2			<u>Wiring Diagrams</u>	<u>Spec</u>

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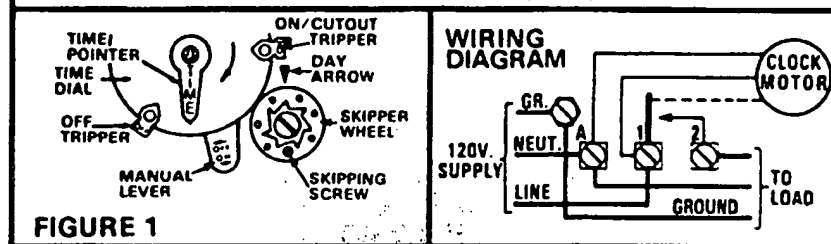
MODEL: T171CR

24 HR DIAL TIME SWITCH WITH "SKIPPER"
AND SPRING-WOUND CARRY-OVER MOTOR
SINGLE POLE SINGLE THROW (SPST)
IN TYPE 3R RAINPROOF ENCLOSURE.

40 AMP. RESISTIVE, INDUCTIVE, TUNGSTEN OR
1000 VA. PILOT DUTY - 120/208/240 VOLT AC;
2 HP (24 FLA) - 120V. AC; 5 HP (28 FLA) - 240 V. AC.

CLOCK MOTOR: 110-125V. 60 HZ.

CLOCK MOTOR VOLTAGE AND CYCLE MUST BE AS SPECIFIED. TO
ORDER REPLACEMENT, INDICATE PART NO. (WG--) ON MOTOR COVER.



WIRING INSTRUCTIONS: To wire switch follow diagram above. Use solid or stranded **COPPER** only wire with insulation to suit installation. See gauge selection table for normal service applications. To make power connections remove 1/2 inch of insulation from wire ends. Insert bare ends of wire under the pressure plate of terminals. Use 3/16 or larger screwdriver to tighten terminal screws firmly. (25 lb-in minimum). **REPLACE INSULATOR BEFORE TURNING ON ELECTRICITY.**

MINIMUM COPPER WIRE SIZE (AWG)	MAX. LOAD (AMP)	MIN. INSUL- ATION TEMP (°C)	75°C INSULATION MAX. MOTOR LOAD (HP)			
			SINGLE PHASE		3 PHASE	
			120 V.	240 V.	208 V.	240 V.
14	15	60	1	2		
12	20	60	1	2 1/2		
10	30	60	2	3	N/A	N/A
8	40	75		6		

PROGRAMMING INSTRUCTIONS

1. TO SET "ON" AND "OFF" TIMES: Hold trippers against edge of **CLOCK-DIAL**, pointing to time (AM or PM) when ON and OFF operations are desired, tighten tripper screws firmly. See caution below. For additional tripper pairs on **CLOCK-DIAL** order 156T1978A.
2. TO SET TIME-OF-DAY: Pull **CLOCK-DIAL** outward. Turn in either direction and align the exact time-of-day on the **CLOCK-DIAL** (the time now, when switch is being put into operation) to the pointer. **DO NOT MOVE POINTER.**
3. TO SKIP OPERATION(S) ON SELECTED DAY(S): Insert **SKIPPING SCREW(S)** in **SKIPPER WHEEL** for day(s) automatic operation(s) is/are NOT required. Tighten screws firmly. Move **MANUAL LEVER** to "OFF" and rotate **SKIPPER WHEEL** to locate correct day-of-week opposite **DAY ARROW**--"YESTERDAY" if ON/CUTOUT **TRIPPER** has not yet advanced wheel "TODAY" if it has.

OPERATING INSTRUCTIONS

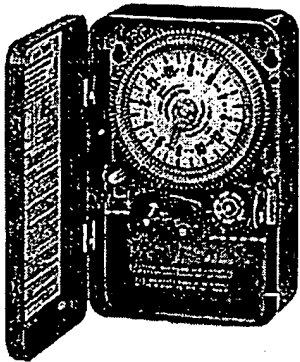
- TO OPERATE SWITCH MANUALLY: Move **MANUAL LEVER** below **CLOCK-DIAL** left or right as indicated by arrows. This will not effect next operation.
CAUTION: TO AVOID SLOW SWITCH ACTION FAILURE, DO NOT OPERATE SWITCH MANUALLY NOR PLACE A TRIPPER 4 HOURS PRIOR TO ON/CUTOUT TRIPPER SWITCHING.
- IN CASE OF POWER FAILURE, reset **CLOCK-DIAL** to proper time-of-day. See programming instructions.

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158T6837

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The T1900 Supervisor Series provides up to 96 operations (48 ON/48 OFF) every 24 hours. This series provides operations with minimum ON/OFF times of 15 minutes. Trippers slide in and out of dial for fast accurate setting. The skipper models provide for operations to be omitted on selected day(s) of the week. Models with carry over provide a minimum of 16 hours of carry-over to maintain preset schedules within $\pm 2\%$ accuracy during power failures. The carry-over automatically rewinds when power resumes. Only one hour is required to rewind the carry-over for each two hours of power outage. These switches are ideal in areas where shorter duration ON/OFF times are required and power outages occur entailing costly resetting.

Model	Switch	Clock Motor Volts	Spring Wound Carry- 60 Hz Over	Amps	Skipper Wheel	Instruction Sheets	Wiring Diagrams	Sample Spec
T1905	SPDT	125	No	20	No	Manual	Wiring Diagrams	Spec
T1906	SPDT	208- 277	No	20	No	Manual	Wiring Diagrams	Spec
T1975	SPDT	125	No	20	Yes	Manual	Wiring Diagrams	Spec
T1976	SPDT	208- 277	No	20	Yes	Manual	Wiring Diagrams	Spec
T1975E	SPDT	480	No	20	Yes	Manual	Wiring Diagrams	Spec

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- ▶ Pool & Spa Controls
- ▶ Energy Controls
- ▶ Surge Suppression
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Model T-1905

PROGRAM TIME SWITCH

LISTED



FOR UP TO 48 TIMING OPERATIONS
ON 24 HOUR SCHEDULE

SINGLE POLE DOUBLE THROW



LR3730

SWITCH RATING: 20 AMP. 125-480 VOLTS A.C., 1/2HP-125V, 1HP-250V,

CLOCK MOTOR: 125 VOLTS - 60 HZ.

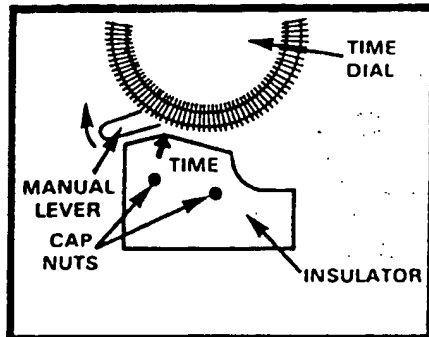
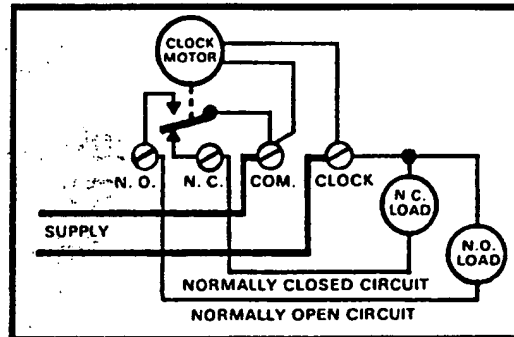


FIG. 1



WIRING DIAGRAM

WIRING INSTRUCTIONS

This Time Switch can be wired to control two circuits as Single Pole Double Throw, or to control one circuit as Single Pole Single Throw. Either normally open (NO) or normally closed (NC). To wire switch see wiring diagram above.

PROGRAMMING INSTRUCTIONS

1. **TO PROGRAM TIME SWITCH**, Depress tripper(s) into dial at desired time(s) operation(s) is/are required.
 - **ON TIME**: First tripper turns on the load for 16-20 minutes. Each additional tripper will lengthen the on time by 15 minutes.
 - **OFF TIME**: First tripper in raised position turns off the load for 10-14 minutes. Each additional space will lengthen the off time by 15 minutes.
2. **SET TIME-OF-DAY**; Turn dial in clockwise direction only and align the exact time-of-day on dial (the time when switch is being put into operation) to the "TIME" arrow on insulator.

OPERATING INSTRUCTIONS

TO CONTROL LOADS MANUALLY, Move manual lever (See Figure 1) up. This lever will close normally open circuit and open the normally closed circuit. To return to automatic control, move lever back to its original position.

IN CASE OF POWER FAILURE, reset dial. See step (2) of programming instructions.

TO REMOVE MECHANISM FROM CASE, Disconnect electricity and all wiring. Depress retainer spring at upper left, or unscrew mounting screws, then grasp dial and pull mechanism out.

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158T4201

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Model T-1906

PROGRAM TIME SWITCH

FOR UP TO 48 TIMING OPERATIONS

ON 24 HOUR SCHEDULE

SINGLE POLE DOUBLE THROW



SWITCH RATING: 20 AMP. 125-480 VOLTS A.C., 1/2 HP-125V, 1 HP-250V.

CLOCK MOTOR: 208-277 VOLTS - 60 HZ.

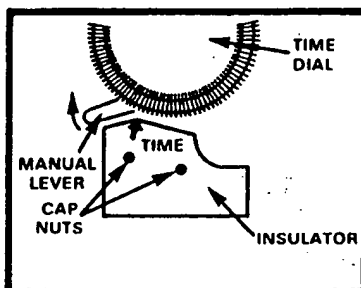
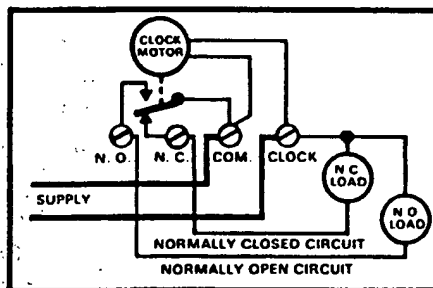


FIG. 1



WIRING DIAGRAM

WIRING INSTRUCTIONS

This Time Switch can be wired to control two circuits as Single Pole Double Throw, or to control one circuit as Single Pole Single Throw. Either normally open (NO) or normally closed (NC). To wire switch see wiring diagram above.

PROGRAMMING INSTRUCTIONS

1. **TO PROGRAM TIME SWITCH**, Depress tripper(s) into dial at desired time(s) operation(s) is/are required.
 - **ON TIME**: First tripper turns on the load for 16-20 minutes. Each additional tripper will lengthen the on time by 15 minutes.
 - **OFF TIME**: First tripper in raised position turns off the load for 10-14 minutes. Each additional space will lengthen the off time by 15 minutes.
2. **SET TIME-OF-DAY**: Turn dial in clockwise direction only and align the exact time-of-day on dial (the time when switch is being put into operation) to the "TIME" arrow on insulator.

OPERATING INSTRUCTIONS

TO CONTROL LOADS MANUALLY, Move manual lever (See Figure 1) up. This lever will close normally open circuit and open the normally closed circuit. To return to automatic control, move lever back to its original position.

IN CASE OF POWER FAILURE, reset dial. See step (2) of programming instructions.

TO REMOVE MECHANISM FROM CASE, Disconnect electricity and all wiring. Depress retainer spring at upper left, or unscrew mounting screws, then grasp dial and pull mechanism out.

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158T4200

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Model T-1975

PROGRAM TIME SWITCH WITH "SKIPPER"



FOR UP TO 48 TIMING OPERATIONS
ON 24 HOUR SCHEDULE
SINGLE POLE DOUBLE THROW



SWITCH RATING: 20 AMP. 125-480 VOLTS A.C., 1/2 HP-125V, 1 HP-250V.

CLOCK MOTOR: 125 VOLTS - 60 HZ.

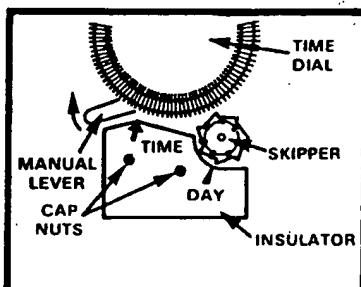
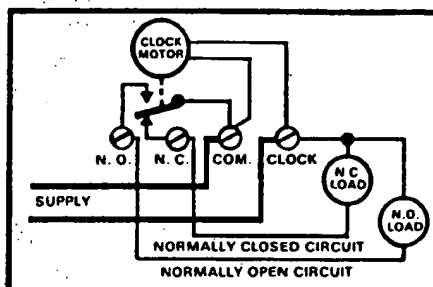


FIG. 1



WIRING DIAGRAM

WIRING INSTRUCTIONS

This Time Switch can be wired to control two circuits as Single Pole Double Throw, or to control one circuit as Single Pole Single Throw. Either normally open (NO) or normally closed (NC). To wire Time Switch as desired, see wiring diagram above.

PROGRAMMING INSTRUCTIONS

- 1. SET PROGRAM TIME:** Depress tripper(s) into dial at desired time(s) operation(s) is/are required.
ON TIME: First tripper turns on the load for 16-20 minutes. Each additional tripper will lengthen the on time by 15 minutes. If skipping of selected days is desired, the skipper tripper (silver color) should be used to initiate the first operation of the daily program, provided that there is at least 3 hours between the last operation of the previous day and the first operation of the present day.
OFF TIME: First tripper in raised position turns off the load for 10-14 minutes. Each additional space will lengthen the off time by 15 minutes.
- 2. SET TIME OF DAY:** Turn dial in clockwise direction only and align the exact time of day on dial (the time when switch is being put into operation) to the time arrow on insulator.
- 3. CHECK SKIPPER WHEEL:** If switch is to function seven days a week, pull all pins, in skipper wheel up to "OUT" position. Otherwise depress pin(s) in skipper wheel for day(s) automatic operation is not required.
 - If, after the dial is set to the correct time of day, and the skipper tripper (silver color) has not yet passed the skipper wheel, turn wheel counter clockwise so that the previous day is opposite the "DAY" arrow.
 - If the skipper tripper has already passed the skipper wheel, set the correct day opposite the "DAY" arrow.

OPERATING INSTRUCTIONS

To control load(s) manually, move manual lever (See Figure 1) up. This lever will close normally open circuit and open the normally closed circuit, provided pin in skipper wheel opposite "DAY" arrow, is in "OUT" position. To return to automatic control, move lever back to its original position.

IN CASE OF POWER FAILURE, Reset dial, see steps 2 and 3 of programming instructions.

TO REMOVE MECHANISM FROM CASE, Disconnect electricity and all wiring. Depress retainer spring at upper left, or unscrew mounting screws, then grasp dial and pull mechanism out.

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158T4202

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INTERMATIC®
TIME CONTROLS

Model T-1976

PROGRAM TIME SWITCH WITH "SKIPPER"®

LISTED



885L

**FOR UP TO 48 TIMING OPERATIONS
ON 24 HOUR SCHEDULE**

SINGLE POLE DOUBLE THROW

SWITCH RATING: 20 AMP. 125-480 VOLTS A.C. ½HP-125V, 1HP-250V.

CLOCK MOTOR: 208-277 VOLTS - 60 HZ.



LR3730

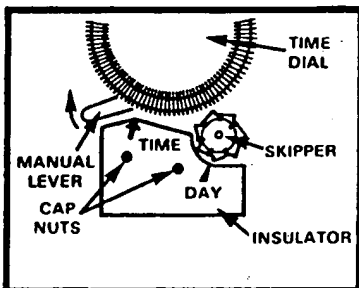
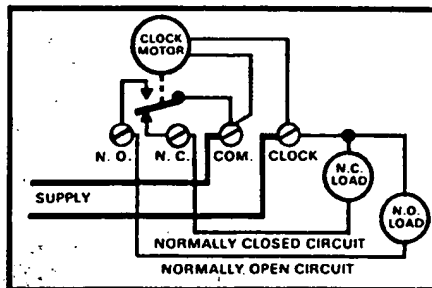


FIG. 1



WIRING DIAGRAM

WIRING INSTRUCTIONS

This Time Switch can be wired to control two circuits as Single Pole Double Throw, or to control one circuit as Single Pole Single Throw. Either normally open (NO) or normally closed (NC). To wire Time Switch as desired, see wiring diagram above.

PROGRAMMING INSTRUCTIONS

- 1. SET PROGRAM TIME:** Depress tripper(s) into dial at desired time(s) operation(s) is/are required.
ON TIME: First tripper turns on the load for 16-20 minutes. Each additional tripper will lengthen the on time by 15 minutes. If skipping of selected days is desired, the skipper tripper (silver color) should be used to initiate the first operation of the daily program, provided that there is at least 3 hours between the last operation of the previous day and the first operation of the present day.
OFF TIME: First tripper in raised position turns off the load for 10-14 minutes. Each additional space will lengthen the off time by 15 minutes.
- 2. SET TIME OF DAY:** Turn dial in clockwise direction only and align the exact time of day on dial (the time when switch is being put into operation) to the time arrow on insulator.
- 3. CHECK SKIPPER WHEEL** If switch is to function seven days a week, pull all pins, in skipper wheel up to "OUT" position. Otherwise depress pin(s) in skipper wheel for day(s) automatic operation is not required.
 - If, after the dial is set to the correct time of day, and the skipper tripper (silver color) has not yet passed the skipper wheel, turn wheel counter clockwise so that the previous day is opposite the "DAY" arrow.
 - If the skipper tripper has already passed the skipper wheel, set the correct day opposite the "DAY" arrow.

OPERATING INSTRUCTIONS

To control load(s) manually, move manual lever (See Figure 1) up. This lever will close normally open circuit and open the normally closed circuit, provided pin in skipper wheel opposite "DAY" arrow, is in "OUT" position. To return to automatic control, move lever back to its original position.

IN CASE OF POWER FAILURE, Reset dial, see steps 2 and 3 of programming instructions.

TO REMOVE MECHANISM FROM CASE, Disconnect electricity and all wiring. Depress retainer spring at upper left, or unscrew mounting screws, then grasp dial and pull mechanism out.

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158T4203

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INTERMATIC®
TIME CONTROLS

Model T-1975E

PROGRAM TIME SWITCH WITH "SKIPPER"®

FOR UP TO 48 TIMING OPERATIONS

ON 24 HOUR SCHEDULE

SINGLE POLE DOUBLE THROW

SWITCH RATING: 20 AMP, 125-480 VOLTS A.C., 1/2 HP-125V, 1 HP-250V.

CLOCK MOTOR: 480 VOLTS - 60 HZ.

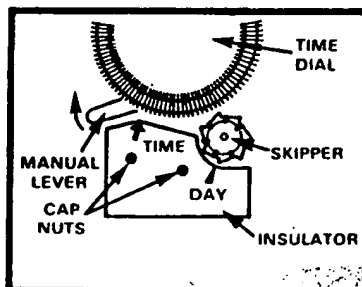
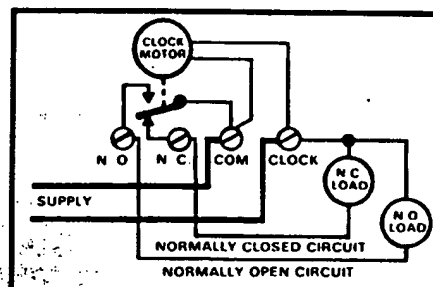


FIG. 1



WIRING DIAGRAM

WIRING INSTRUCTIONS

This Time Switch can be wired to control two circuits as Single Pole Double Throw, or to control one circuit as Single Pole Single Throw. Either normally open (NO) or normally closed (NC). To wire Time Switch as desired, see wiring diagram above.

PROGRAMMING INSTRUCTIONS

- SET PROGRAM TIME:** Depress tripper(s) into dial at desired time(s) operation(s) is/are required.
ON TIME: First tripper turns on the load for 16-20 minutes. Each additional tripper will lengthen the on time by 15 minutes. If skipping of selected days is desired, the skipper tripper (silver color) should be used to initiate the first operation of the daily program, provided that there is at least 3 hours between the last operation of the previous day and the first operation of the present day.
OFF TIME: First tripper in raised position turns off the load for 10-14 minutes. Each additional space will lengthen the off time by 15 minutes.
- SET TIME OF DAY:** Turn dial in clockwise direction only and align the exact time of day on dial (the time when switch is being put into operation) to the time arrow on insulator.
- CHECK SKIPPER WHEEL** If switch is to function seven days a week, pull all pins, in skipper wheel up to "OUT" position. Otherwise depress pin(s) in skipper wheel for day(s) automatic operation is not required.
 - If, after the dial is set to the correct time of day, and the skipper tripper (silver color) has not yet passed the skipper wheel, turn wheel counter clockwise so that the previous day is opposite the "DAY" arrow.
 - If the skipper tripper has already passed the skipper wheel, set the correct day opposite the "DAY" arrow.

OPERATING INSTRUCTIONS

To control load(s) manually, move manual lever (See Figure 1) up. This lever will close normally open circuit and open the normally closed circuit, provided pin in skipper wheel opposite "DAY" arrow, is in "OUT" position. To return to automatic control, move lever back to its original position.

IN CASE OF POWER FAILURE, Reset dial, see steps 2 and 3 of programming instructions.

TO REMOVE MECHANISM FROM CASE, Disconnect electricity and all wiring. Depress retainer spring at upper left, or unscrew mounting screws, then grasp dial and pull mechanism out.

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158T4211

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- ▶ Surge Suppression
- ▶ Weatherproof Products
- ▶ Professional Lighting
- ▶ Mosquito Products

▶ **Energy Controls**

- Electronic Time Switches
- Mechanical Time Switches
- Photo Controls
- In-Wall Timers

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The T2000 Series provides up to 84 (42 "ON/OFF") operations each week. Minimum "ON/OFF" times for this series are 2 hours each providing up to 6 "ON/OFF" operations each day.

Model	Carryover	Switch	Clock Motor Volts 60 Hz	Amps/pole	Wiring Diagrams	Sample Spec
T2005	No	SPDT	125	20	Wiring Diagrams	Spec
T2006	No	SPDT	208- 277	20	Wiring Diagrams	Spec

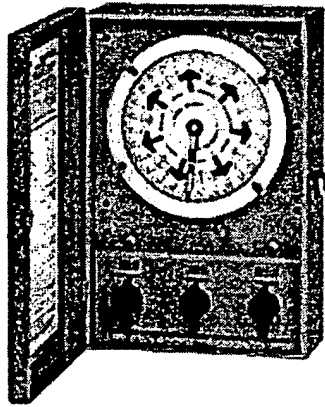
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T50000 Series 7-Day Dial with Carry-Over T51111BC

This series provides photo control initiated/time switch terminated control. These time switches provide a different "ON/OFF" program each day of the week and a spring wound carry-over. These time switches are recommended for applications where you need to turn a load "ON" at dusk and "OFF" at a preset time. The spring wound carry-over provides a carry-over of 16 hours minimum to maintain accurate load control even during power failure. When power resumes, the carry-over automatically rewinds itself. Only 1 hour is required to rewind the carry-over for each 2 hours of outage.

The three models provide control of 1, 2 or 3 circuits. A light level adjustment is provided on the photo control. All models have single pole double throw switches and manual circuit by-pass switches. Unit is designed to control the contactor control circuit only. It is not recommended for direct switching of tungsten, mercury vapor or similar

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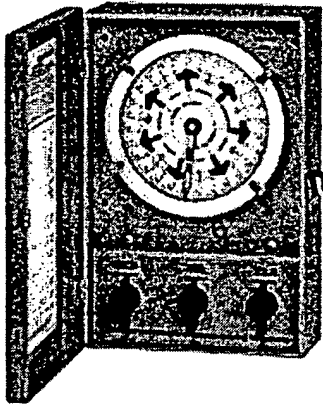
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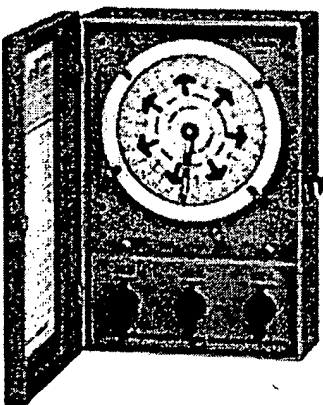
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T51111BC**

This series provides photo control initiated/time switch terminated control. These time switches provide a different "ON/OFF" program each day of the week and a spring wound carry-over. These time switches are recommended for applications where you need to turn a load "ON" at dusk and "OFF" at a preset time. The spring wound carry-over provides a carry-over of 16 hours minimum to maintain accurate load control even during power failure. When power resumes, the carry-over automatically rewinds it...



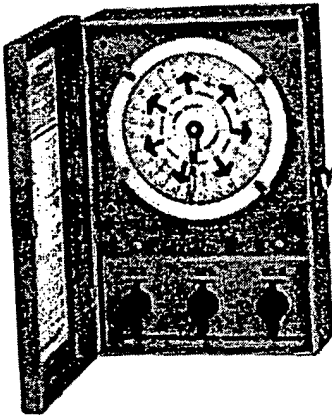
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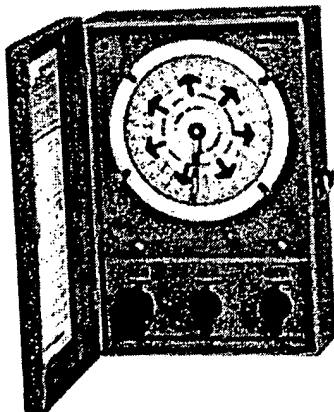
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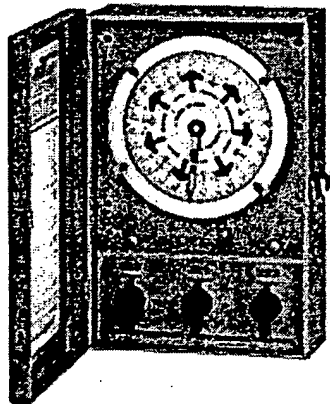
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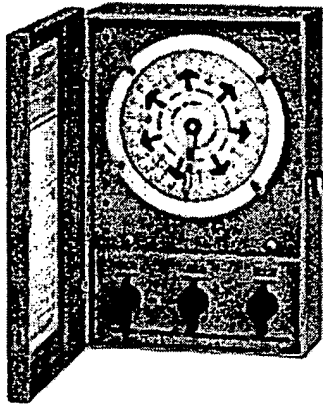
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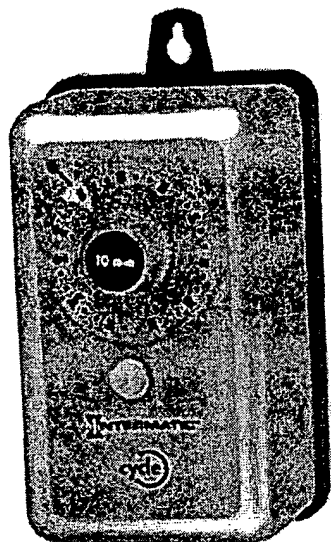
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This timer provides repetitive cycling for fans, misters, foggers, feeders, process equipment, oil pumps, irrigation, nurseries and other short cycle applications. The timer is field adjustable for a percentage of a total cycle duration. Total cycle durations can be set from 30 seconds up to a maximum of 30 minutes, with ON/OFF durations from 1 second up to 29 minutes. The total cycle duration is selected by positioning two jumpers on the circuit board, which are factory preset for 10 minutes. The percentage of total ON time is selected using the rotary knob, which provides 30 separate detent positions for precise selection. Power input may be any standard 120 volt or 240 volt AC supply. The timer enclosure includes two slotted mounting holes on 5" centers and a 1/2" knockout for conduit connection.

This timer is designed to function in dusty, ammonia and wash-down environments. It has an environmental operating temperature range of -10°C (14°F) to +60°C (140°F) and will withstand up to 6000 volt 3000 amp power surges.

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Model	Switch	Timer Supply	Amps	Watts	Wiring Diagrams
		50/60 Hz			
		120 VAC			
		or 240			
CT1000	SPST	VAC (field selectable)	20	4800	<u>Wiring Diagrams</u>

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